WHAT IS CLAIMED IS:

1. A method of providing Differentiated Service (DiffServ) based Quality of Service (QoS) to Voice over Internet Protocol (VoIP) packets through a router in an Internet protocol (IP) network, the IP network comprising routers, a VoIP call control device for performing a call processing function on the basis of a VoIP signal, and a QoS control server for providing QoS, the method comprising the steps of:

a) providing VoIP call session information including source and destination IP addresses, source and destination user datagram protocol (UDP) port numbers, and requested QoS information to the QoS control server by the VoIP call control device;

b) finding source and destination routers using the VoIP call session information and sending the VoIP call session information requiring provision of QoS to the source and destination routers by the QoS control server; and

c) providing DiffServ based QoS to packet flows by the aggregate of packet flows using the VoIP call session information at the time of VoIP packet forwarding by the routers.

2. The method of providing DiffServ based QoS to VoIP

packets through a router according to claim 1, wherein said routers are open programmable switched routers which are capable of providing QoS to VoIP packets.

3. The method of providing DiffServ based QoS to VoIP packets through a router according to claim 1, wherein:

said routers, said VoIP call control device and said QoS control server are designed in a clients-server structure such that both said routers and VoIP call control device are operated as clients, and said QoS control server is operated as a server; and

said routers, said VoIP call control device and said QoS control server are connected to each other in a TCP connection manner through an open application programming interface.

4. The method of providing DiffServ based QoS to VoIP packets through a router according to claim 1, wherein the step b) is performed such that, if router interface configuration information of each of said routers is initialized and modified, said QoS control server receives the router interface configuration information from a corresponding router, manages the router interface configuration information, and uses the router interface configuration information to find a corresponding router at the time of receiving a QoS session addition/deletion request.

5. The method of providing DiffServ based QoS to VoIP packets through a router according to claim 1, wherein the step c) comprises the steps of:

classifying VoIP packets flows requiring provision of QoS using connection setup/disconnection information on end-to-end flows of a VoIP call contained in the received VoIP call session information by said routers; and

providing DiffServ based QoS to the classified VoIP packet flows by the aggregate of packet flows.